HEADQUARTERS
PENINSULAR BASE SECTION
MEDITERRANEAN THEATER
Office of the Theater Chief Surgeon
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## SECTION I - EVALUATION OF NUTRITIONAL STATUS

1. Medical officers are frequently called upon to render an opinion as to the nutritional status of certain individuals and population groups. In some instances they have uncritically accepted the statements of ex-enemy physicians in recommending dietary changes and ration augmentation. In view of the world wide food shortage and the current War Department conservation program, it is imperative that such decisions be accurate and considered in the light of the best medical information available.

2. As a matter of general information and for the purposes of uniformity, certain signs commonly present in malnourished individuals have been noted and will be used as a basis for diagnosis and reporting.

3. Evaluation of the nutritional status of an individual or of a population group is best accomplished by the careful interpretation of clinically observed phenomena. The specificity of certain signs attributed to malnutrition in isolated cases is always circumspect. In group surveys conclusions may be based upon the peristent recurrence of two or more signs pointing independently to the same specific deficiency. Subjective symptoms are of little value, particularly when submitted by restricted or lay personnel.

4. It is expected that all medical officers will review these signs and familiarize themselves with the clinical syndromes. German and other physicians under their jurisdiction will be instructed to use only these criteria in establishing the diagnosis of malnutrition.

## SECTION II - SPECIFIC DEFICIENCIES AND THEIR INDICATIONS

5. Calories - Loss of body weight.

a. Standards are variable according to age, height and race. Consult TM 8-500, AR 40-100 and AR 40-105. A ten percent (10%) variation

below the standard may be considered "underweight". This is one of the simplest means of assessing caloric intake of an individual.

6. Protein - Muscle wasting - Edema.

a. Atrophy of large muscles (manifested by "winged scapulae" prominence of pelvic bony structure, ready visualization of 2nd and 3rd ribs in mi mid-clavicular line and deepening of the para-vertebral sulcus) is an indication of prolonged negative nitrogen balance.

b. In the absence of such other causes as nephritis, cardiac failure, cirrhosis of the liver, varicose veins, hypothyroidism, filariasis, old cold injury or flat feet, a pitting bilateral dependent edema is regarded as significant.

7. Vitamin "A" - Hyperkeratosis, xerosis conjunctiva, xeropthalmia, night blindness.

8. Thiamin - Paresthesia, loss of deep tendon reflex, tenderness of calf muscles, edema.

9. Riboflavin - Dermatitis (seborrheic); photophobia and lachrymation; cheilosis; angular stomatitis.

10. Nicotinic Acid - Pellagrous dermatitis; glossitis; ulcerative stomatitis.

11. Ascorbic Acid - Petechia; ecchymosis; purpura; scorbutic gingivitis.

12. Vitamin "D" - Rickets in children (under five (5) years of age).

SECTION III - ASSOCIATED PHENOMENA OF MALNUTRITION.

13. Skin Changes.

a. Pigmentation is an important sign associated generally with malnutrition. Pigmentation may appear anywhere on the body but is most commonly found as indicated below:

(1) Pressure point pigmentation over ischial tuberositis, acetabula, and sacrum. This is a dark brown pigmentation associated with rough, scaling skin. It is always bilateral and symmetrical.

(2) Infraorbital, frontal, and malar pigmentation. This is light brown in color and on superficial examination appears to be dirt.

b. Facial seborrhea is found in riboflavin deficiency dermatitis. It is characterized by a fine, gready, scaling desquamation on an erythematous background. A common site is the naso-labial folds, but it may occur around the ears.

c. Pellagrous dermatitis is seen on exposed portion of the wrists, neck and ankles as a thickened, scaling, pigmented dermatitis. Late stages contain scar tissue and telangiectasis.

d. Follicular hyperkeratoses are dry, scaling, pigmented conical shaped papules distributed over the extremities and buttocks. The skin feels dry, harsh, and sandy.

e. Mosaic skin-crinkling, or crinkled skin, produces a mosaic-like superficial linear pattern.

f. Petechia, ecchymosis, purpuric spots are significant in areas subject to only minimal trauma.

14. Eye Signs.

a. Photophobia and lachrymation are significant when the patient blinks, squints, and tears in ordinary light. Bright sunlight makes the subject obviously uncomfortable.

b. Xerosis conjunctiva is significant in any of its severe manifestations. The conjunctival vessels are very prominent. The color of the sclera may be creamy white or milky in appearance. There is a change in the transmissibility of light of the conjunctiva, amounting to an opaqueness which may mask the scleral vessels. The thickening of the conjunctiva is manifested by the irregular surface, wrinkling, and the depth to which light penetrates before it is reflected back from the sclera. There is a distinct lack of lustre. At times a yellowish or dirty brownish pigmentation may be diffusely distributed. Bitot spots are small areas where these changes are most advanced. They form grossly perceptible elevations, the surface of which may be foamy in appearance with a characteristic yellowish color. The borders are well defined. The spots are usually located near the limbal area at the level of the equator.

15. Lip Signs:

a. Cheilosis - Bright red or vermillion color of the lips posterior to line of closure. Anteriorly the surface of the lips presents a roughened, scaling appearance.

b. Angular stomatitis - visible with the mouth partly opened. These are granulating, friable lesions radiating out from the corners of the mouth.

16. Gum Signs:

a. Markedly edematous and intensly hyperemic gingival tissue in the absence of infection is significant. The swelling may be so intense as to give rise to a glossy, satiny surface. The free edge of the gum may lift away from the enamelled surface of the teeth because of the turgidity of the tissue. The classical picture of scurvy is quite different for in this case the gums present a picture of spongy, swollen, friable, diffusely

bleeding ulcerated tissue.

17. Tongue Signs

a. Two types of glossitis are of importance in the malnourished. That associated with ariboflavinosis and that with aniacinosis (pellegra).

(1) Ariboflavinosis is characterized by a magenta colored tongue with flat fungiform papillae.

(2) Pellegra produces a brilliant or fiery red tongue. Color changes start at the tip and lateral margins but extend eventually over the whole dorsum. Filiform papillary atrophy occurs in the same sequence as the color change. The tongue may be edematous as evidenced by the marginal serrations due to pressure against the teeth. Eventually, shallow, punched-out ulcers, with gray necrotic surface may appear.

18. Neurological Findings.

a. Calf muscle tenderness must be bilateral to be of significance. The presence of local pathology, such as varicose veins, vitiates the importance of this sign.

b. Knee and ankle jerks - bilateral and symmetrical absence.

c. Vibratory sense lost to perception of 256 C tuning fork Conventional site for determination is over ankle (malleolus).

19. Laboratory Findings.

a. Serum protein concentration less than six point zero (6.0) grams percent as measured by any reliable modification of specific gravity method.

b. Haemoglobin. Concentration less than twelve (12) grams percent should be considered significant for males, and eleven (11) grams percent for females.

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